
Diabetes

Definition: Respondents ever told by a doctor that they have diabetes.

Prevalence of Diabetes

- South Dakota 7.1%
- All participants nationwide 7.5%

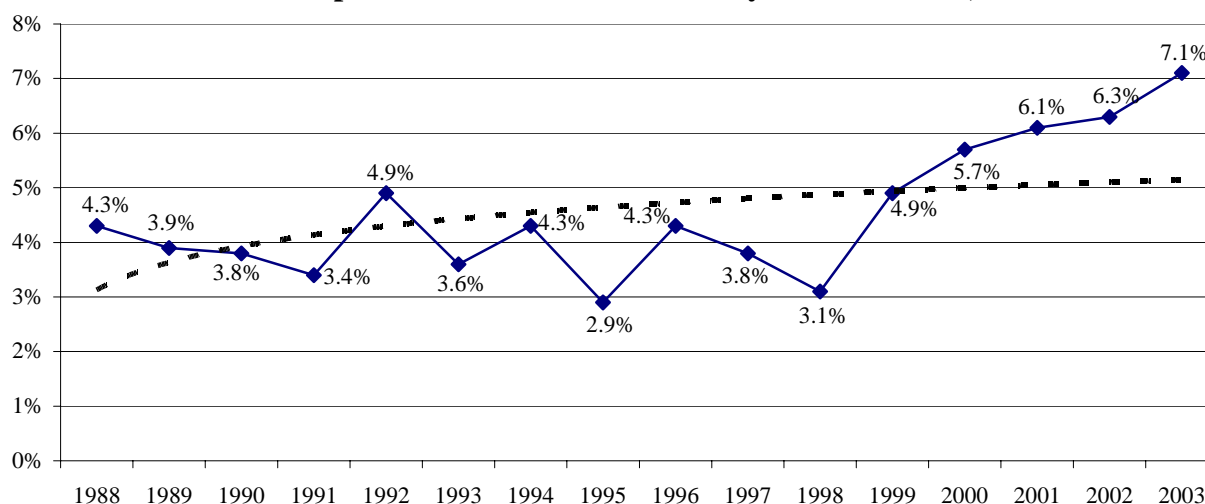
Healthy People 2010 Objective

There was no stated Healthy People 2010 Objective for having diabetes.

Trend Analysis

Since this question was first asked in 1988, the percent of respondents who stated they were told they had diabetes has increased from 4.3 percent in 1988 to a new high of 7.1 percent in 2003.

Figure 40
Percent of Respondents Who Were Told They Have Diabetes, 1988-2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 1988-2003

Demographics

Gender There is no substantial difference in the prevalence of diagnosed diabetes between males and females overall. However, older males do seem to have a higher prevalence than older females especially in the 65-74 age group.

Age The prevalence of diagnosed diabetes increases as age increases with a substantial increase in the 55-64 year old age group.

Race American Indians demonstrate a much higher prevalence of diagnosed diabetes than whites.

Region The American Indian counties region shows a considerably higher prevalence of diagnosed diabetes than the southeast and west regions.

Household Income Diagnosed diabetes generally decreases as household income increases.

Education	The prevalence of diagnosed diabetes generally decreases as education levels increase. This includes a substantial decrease when a high school education is achieved.
Employment Status	Those who are unable to work exhibit the largest prevalence of diagnosed diabetes followed by those who are retired.
Marital Status	Those who are widowed demonstrate the largest prevalence of diagnosed diabetes.

Table 52
Respondents Who Were Told They Have Diabetes, 2003

	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
Total	5,260	7.1	(6.4-7.9)	2,196	7.5	(6.5-8.7)	3,064	6.6	(5.8-7.6)
Age									
18-24	359	0.3	(0.0-1.8)	170	0.0	-	189	0.5	(0.1-3.6)
25-34	659	2.3	(1.3-4.0)	272	2.5	(1.0-5.9)	387	2.0	(1.0-4.1)
35-44	984	3.2	(2.2-4.5)	435	2.6	(1.5-4.4)	549	3.7	(2.4-5.9)
45-54	1,026	5.7	(4.2-7.6)	468	4.8	(3.1-7.6)	558	6.6	(4.4-9.6)
55-64	798	12.9	(10.5-15.8)	335	16.2	(12.3-21.1)	463	9.6	(7.0-12.9)
65-74	690	17.4	(14.5-20.8)	272	23.0	(18.0-29.0)	418	12.5	(9.5-16.1)
75+	710	17.7	(14.8-21.1)	234	20.7	(15.6-27.0)	476	15.9	(12.5-20.0)
Race									
White	4,799	6.5	(5.8-7.3)	2,019	7.1	(6.0-8.3)	2,780	5.9	(5.1-6.9)
American Indian	282	15.6	(11.4-20.9)	103	15.1	(8.8-24.7)	179	15.9	(11.0-22.5)
Region									
Southeast	1,291	6.0	(4.8-7.4)	545	6.2	(4.6-8.4)	746	5.7	(4.2-7.8)
Northeast	1,456	8.5	(7.1-10.1)	594	9.3	(7.1-12.0)	862	7.8	(6.2-9.9)
Central	674	7.9	(6.1-10.3)	279	8.8	(6.1-12.7)	395	7.1	(4.9-10.4)
West	1,444	5.9	(4.7-7.3)	621	6.6	(4.8-9.0)	823	5.2	(3.9-6.9)
American Indian Counties	395	12.2	(9.1-16.3)	157	11.4	(7.1-17.8)	238	13.0	(8.9-18.7)
Household Income									
Less than \$15,000	584	12.4	(9.9-15.5)	194	13.2	(9.1-18.7)	390	11.9	(8.9-15.7)
\$15,000-\$19,999	457	12.3	(9.3-16.2)	155	10.8	(6.9-16.5)	302	13.4	(9.3-19.0)
\$20,000-\$24,999	597	10.4	(8.0-13.5)	257	11.0	(7.4-16.1)	340	9.8	(6.9-13.8)
\$25,000-\$34,999	840	6.8	(5.2-8.8)	354	9.7	(6.8-13.5)	486	4.3	(2.9-6.3)
\$35,000-\$49,999	927	6.2	(6.2-4.8)	420	6.7	(4.6-9.6)	507	5.7	(3.9-8.2)
\$50,000-\$74,999	753	3.9	(2.7-5.6)	355	4.9	(3.1-7.7)	398	2.8	(1.6-4.8)
\$75,000+	568	4.0	(2.6-6.1)	316	4.6	(2.8-7.5)	252	3.1	(1.3-6.9)
Education									
Less than High School	554	13.3	(10.5-16.7)	257	13.3	(9.6-18.1)	297	13.3	(9.4-18.4)
High School or G.E.D.	1,764	6.4	(5.3-7.6)	766	6.3	(4.9-8.2)	998	6.4	(5.0-8.2)
Some Post-High School	1,529	7.1	(5.9-8.7)	571	7.9	(5.9-10.6)	958	6.5	(5.0-8.4)
College Graduate	1,395	5.5	(4.4-7.0)	595	6.5	(4.6-8.9)	800	4.6	(3.4-6.3)
Employment Status									
Employed for Wages	2,761	3.6	(3.0-4.4)	1,152	3.6	(2.7-4.8)	1,609	3.7	(2.8-4.7)
Self-employed	659	4.9	(3.5-6.9)	445	4.9	(3.2-7.3)	214	5.0	(2.8-9.0)
Unemployed	113	8.1	(4.2-15.1)	*	*	*	*	*	*
Homemaker	253	9.5	(5.9-14.9)	*	*	*	*	*	*
Retired	1,248	17.6	(15.4-20.1)	453	23.4	(19.4-28.0)	795	13.2	(10.9-16.0)
Unable to Work	123	29.9	(20.9-40.9)	*	*	*	*	*	*
Marital Status									
Married/Unmarried Couple	3,124	6.7	(5.8-7.7)	1,395	7.9	(6.6-9.4)	1,729	5.5	(4.4-6.8)
Divorced/Separated	694	9.7	(7.5-12.3)	275	11.2	(7.6-16.2)	419	8.5	(6.1-11.7)
Widowed	721	15.9	(13.2-19.0)	120	16.0	(10.3-24.0)	601	15.8	(12.9-19.3)
Never Married	716	3.5	(2.4-5.0)	405	4.3	(2.7-6.6)	311	2.2	(1.2-4.0)

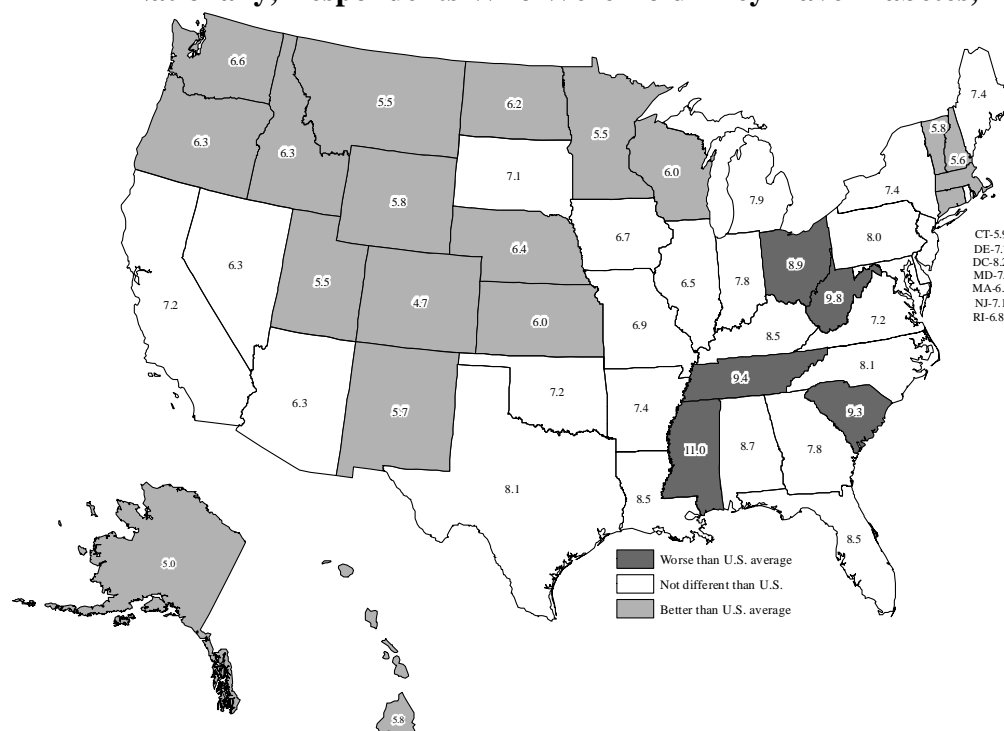
Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003

Note: *Results based on sample sizes less than 100 have been suppressed

National Statistics

The national percent for respondents who were told they have diabetes is 7.5 percent. South Dakota was not significantly different from the United States. Colorado had the lowest percent of respondents who were told they have diabetes with 4.7 percent, while Mississippi had the highest percent of respondents who were told they have diabetes with 11.0 percent.

Figure 41
Nationally, Respondents Who Were Told They Have Diabetes, 2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003

Further Analysis

Following are data illustrating the percent of those who were told they have diabetes for various health behaviors and conditions. For example, 24.1 percent of respondents who stated they have fair or poor health have diabetes, while 4.5 percent of respondents who stated they have excellent, very good, or good health have diabetes.

Table 53
Have Diabetes for Selected Health Behaviors and Conditions, 2003

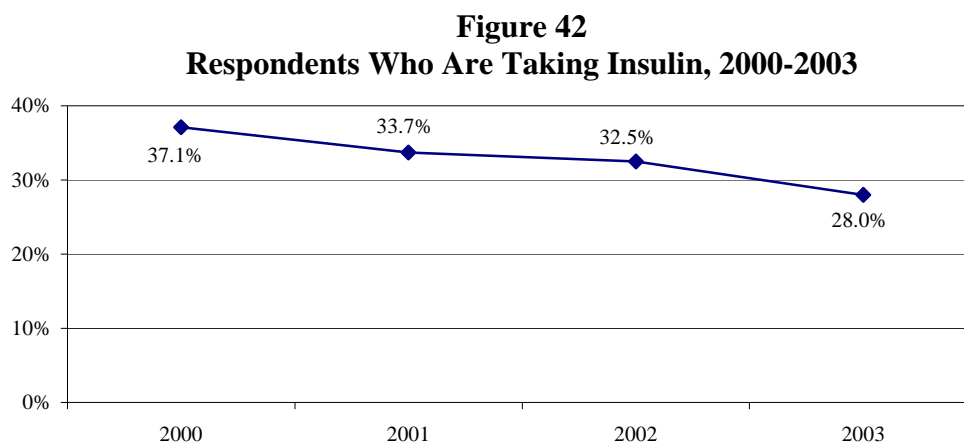
Health Behavior or Condition	# Respondents	% Diabetes	95% CI
Fair or Poor Health Status	798	24.1	20.8-27.7
Excellent, Very Good, or Good Health Status	4,452	4.5	4.0-5.2
Obese	1,220	14.2	12.3-16.4
Overweight	3,131	9.5	8.5-10.7
Not Overweight	1,916	3.4	2.6-4.4
No Leisure Time Physical Activity	1,279	10.1	8.5-12.0
Leisure Time Physical Activity	3,979	6.3	5.5-7.1
No Moderate Physical Activity	2,845	8.2	7.2-9.4
Moderate Physical Activity	2,252	5.8	4.9-6.9
No Vigorous Physical Activity	4,199	8.1	7.3-9.0
Vigorous Physical Activity	978	3.7	2.7-5.2

Table 53 (continued)
Have Diabetes for Selected Health Behaviors and Conditions, 2003

Health Behavior or Condition	# Respondents	% Diabetes	95% CI
Not Doing Anything to Control Weight	1,427	4.7	3.6-6.1
Trying to Lose or Maintain Weight	3,824	8.1	7.2-9.0
Less Than Five Servings of Fruits and Vegetables	4,195	6.1	5.4-6.9
At Least Five Servings of Fruits and Vegetables	1,065	11.4	9.6-13.6
Current Smoker	1,141	5.5	4.2-7.3
Former Smoker	1,450	11.3	9.7-13.2
Never Smoked	2,663	5.7	4.9-6.6
Smokeless Tobacco Use	290	4.0	2.3-6.6
No Smokeless Tobacco Use	4,883	7.3	6.6-8.1
Drank Alcohol in Past 30 Days	3,019	4.5	3.8-5.4
No Alcohol in Past 30 Days	2,227	11.1	9.8-12.6
Binge Drinker	796	3.1	2.1-4.7
Not a Binge Drinker	4,435	8.1	7.3-9.0
Heavy Drinker	197	2.9	1.2-6.9
Not a Heavy Drinker	5,032	7.3	6.6-8.1
Hypertension	1,561	18.2	16.1-20.5
No Hypertension	3,693	3.4	2.9-4.1
High Blood Cholesterol	1,396	16.0	13.9-18.2
No High Blood Cholesterol	2,708	6.3	5.4-7.4
No Mammogram within Past Two Years (40+)	494	8.1	5.8-11.2
Mammogram within Past Two Years (40+)	1,695	10.2	8.7-12.0
Insufficient Cervical Cancer Screening	319	3.8	2.2-6.5
Sufficient Cervical Cancer Screening	1,912	5.4	4.4-6.6
No Health Insurance (18-64)	367	3.1	1.8-5.4
Health Insurance (18-64)	3,378	4.7	4.0-5.5
Employer Based Health Insurance Coverage (18-64)	2,368	3.8	3.0-4.6
Private Plan (18-64)	511	2.1	1.2-3.6
Medicaid or Medical Assistance (18-64)	118	7.8	3.8-15.1
The Military, CHAMPUS, TriCare, or the VA (18-64)	131	10.2	5.7-17.8
The Indian Health Service (18-64)	145	18.9	12.0-28.4
No Flu Shot (65+)	326	10.5	7.4-14.8
Flu Shot (65+)	1,073	19.6	17.0-22.4
No Pneumonia Shot (65+)	501	12.8	9.8-16.6
Pneumonia Shot (65+)	874	20.6	17.8-23.8
Current Asthma	370	7.7	5.4-10.8
Former Asthma	143	7.1	3.7-13.1
Never Had Asthma	4,732	7.1	6.3-7.9
Arthritis	1,778	13.5	11.9-15.4
No Arthritis	3,444	4.4	3.7-5.1
Arthritis - Activities Limited	836	14.9	12.4-17.9
No Arthritis - Activities Limited	4,377	5.8	5.1-6.6
Disability - Activities Limited	1,124	15.2	12.9-17.8
No Disability - Activities Limited	4,099	5.2	4.6-5.9
Disability with Special Equipment Needed	371	19.2	14.9-24.4
No Disability with Special Equipment Needed	4,856	6.4	5.7-7.1
Injured in a Fall (45+)	177	13.6	9.0-20.1
Not Injured in a Fall (45+)	3,059	11.9	10.7-13.3
Sunburn in Past 12 Months	2,002	3.6	2.9-4.5
No Sunburn in Past 12 Months	3,238	9.8	8.7-11.0
Military Veteran	862	13.5	11.2-16.1
Not a Military Veteran	4,352	5.8	5.2-6.6

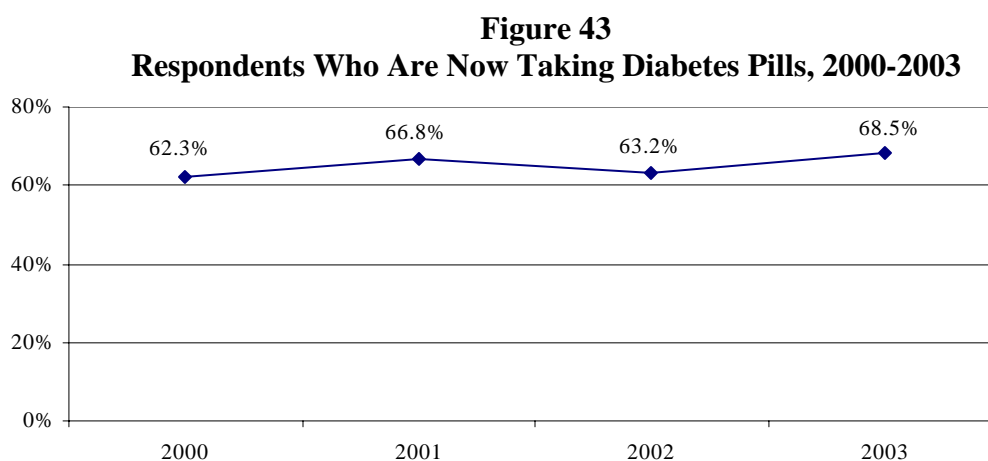
Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003

Figure 42, below, displays the percent of respondents who are taking insulin for their diabetes. Since 2000, the percent of respondents taking insulin has been decreasing to a low in 2003 with 28 percent of respondents taking insulin.



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Figure 43, below, displays the percent of respondents taking pills for their diabetes. The percent of respondents taking pills for their diabetes increased from 2002 to 2003 to a high of 68.5 percent of respondents taking pills for their diabetes.



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

From 2002 to 2003, the percent of respondents who only took diabetes pills increased from 50.8 percent in 2002 to 54.7 percent in 2003. The percent of respondents who only took insulin decreased from 20.2 percent in 2002 to 14.3 percent in 2003. Table 54 below displays this.

Table 54 Respondents Taking a Combination of Insulin and Diabetes Pills, 2000-2003				
	2003	2002	2001	2000
Number of respondents	450	344	354	287
Insulin and diabetes pills	13.8%	12.4%	12.9%	12.5%
Insulin only	14.3%	20.2%	20.7%	24.5%
Diabetes pills only	54.7%	50.8%	53.9%	49.7%
Neither	17.2%	16.6%	12.5%	13.2%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Since 2000, the majority of respondents stated that they check their blood for glucose or sugar one or more times per day. In 2003, the second highest response for how many times respondents check their blood for glucose or sugar was one to two times per week with 12.9 percent. Table 55 below illustrates this.

Table 55				
Number of Times Respondents Check Their Blood for Glucose or Sugar, 2000-2003				
	2003	2002	2001	2000
Number of respondents	448	342	348	277
1+ times per day	59.6%	60.1%	57.6%	58.1%
3-6 times per week	9.4%	12.6%	10.7%	8.4%
1-2 times per week	12.9%	11.5%	12.0%	14.5%
1-4 times per month	7.2%	6.5%	5.9%	5.3%
< 1 time per month	6.3%	4.4%	5.1%	5.6%
Never	4.6%	4.8%	8.6%	8.1%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

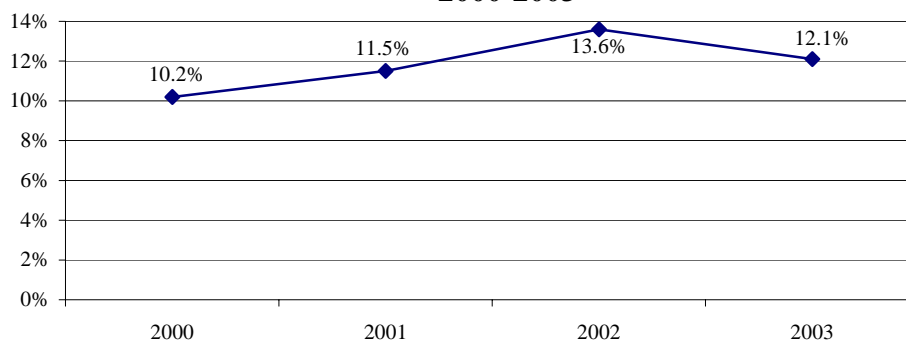
Since 2000, the majority of respondents stated that they check their feet one or more times per day. In 2003, 79.1 percent of the respondents stated they check their feet one or more times per day, while 70.3 percent of the respondents check their feet one or more times per day in 2000. Table 56 below illustrates this.

Table 56				
Number of Times Respondents Check Their Feet for Any Sores or Irritations, 2000-2003				
	2003	2002	2001	2000
Number of respondents	445	340	337	266
1+ times per day	79.1%	78.8%	74.0%	70.3%
3-6 times per week	0.9%	4.8%	2.7%	3.9%
1-2 times per week	8.9%	8.5%	10.1%	10.3%
1-4 times per month	4.0%	2.1%	3.9%	5.0%
< 1 time per month	1.5%	0.5%	2.2%	2.6%
Never	5.6%	5.3%	7.1%	7.8%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Figure 44, below, displays the percent of respondents with sores on their feet that took more than four weeks to heal had been on the increase from 2000 until 2002. However, there was a decrease in the percent of respondents with sores on their feet that took more than four weeks to heal from 13.6 percent in 2002 to 12.1 percent in 2003.

Figure 44
Respondents With Sores That Took More Than Four Weeks to Heal, 2000-2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Since 2000, the majority of respondents stated that they seen a health professional four to six times a year. In 2003, 44.1 percent of the respondents stated they saw a health professional four to six times a year, while in 2000 32.2 percent of the respondents stated they saw a health professional four to six times a year. Table 57 below displays this.

Table 57 Number of Times Respondents Saw a Doctor, Nurse, or Other Health Professional for Their Diabetes in the Past Year, 2000-2003				
	2003	2002	2001	2000
Number of respondents	447	338	342	271
13+	1.6%	1.8%	1.3%	1.6%
7-12	11.9%	9.6%	9.5%	14.2%
4-6	44.1%	43.5%	43.0%	32.2%
2-3	27.3%	29.0%	25.1%	31.5%
1	8.3%	11.0%	14.3%	12.0%
0	6.8%	5.1%	6.7%	8.4%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

In 2003, 40 percent of the respondents stated they had a health professional check their hemoglobin A1c four to six times a year, while in 2000 26.9 percent of the respondents stated they had a health professional check their hemoglobin A1c four to six times a year as illustrated below in Table 58.

Table 58 Number of Times Respondents Had Hemoglobin “A1c” Checked by Doctor, Nurse, or Other Health Professional in the Past Year, 2000-2003				
	2003	2002	2001	2000
Number of respondents	431	321	310	251
13+	1.1%	0.3%	0.4%	0.4%
7-12	5.4%	3.4%	2.6%	3.5%
4-6	40.0%	36.8%	37.4%	26.9%
2-3	34.9%	35.3%	34.2%	39.2%
1	13.2%	18.7%	16.8%	18.4%
0	4.4%	4.2%	6.9%	9.7%
Never heard of test	1.0%	1.2%	1.7%	1.9%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

In 2003, 25.2 percent of the respondents stated they had a health professional check their feet four to six times a year, while in 2000 24 percent of the respondents stated they have a health professional check their feet four to six times a year as illustrated below in Table 59.

Table 59 Number of Times Respondents Had a Health Professional Check Their Feet for Any Sores or Irritations, 2000-2003				
	2003	2002	2001	2000
Number of respondents	445	336	345	265
13+	1.1%	1.8%	1.0%	0.6%
7-12	4.1%	4.2%	5.3%	9.5%
4-6	25.2%	26.6%	26.5%	24.0%
2-3	23.2%	24.4%	20.8%	21.8%
1	20.8%	22.9%	20.5%	17.9%
0	25.6%	20.0%	25.9%	26.2%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

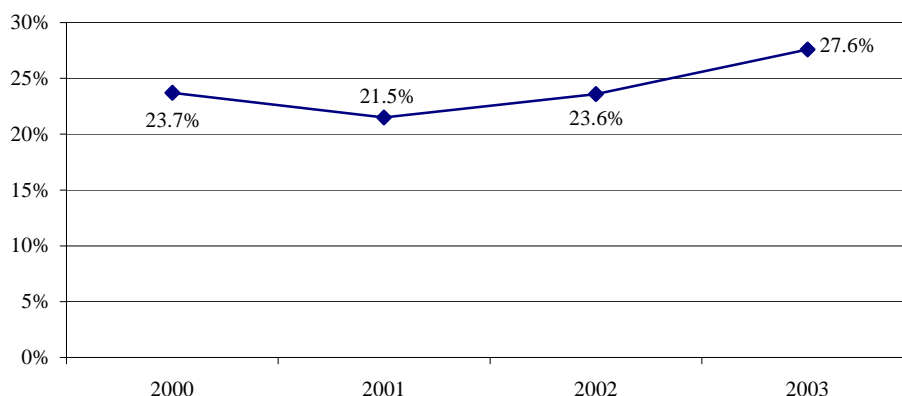
Since 2000, the majority of respondents stated they have had an annual eye exam where their pupils were dilated. In 2003, 59.9 percent of the respondents stated they had an annual eye exam where their pupils were dilated, compared to 47 percent in 2002. Table 60 below displays this.

Table 60				
Last Time Respondents Had an Eye Exam With Pupils Dilated, 2000-2003				
	2003	2002	2001	2000
Number of respondents	451	339	348	283
Within the past month	18.7%	30.3%	20.2%	16.1%
1-12 months ago	59.9%	47.0%	57.4%	61.1%
1-2 years ago	11.3%	13.1%	10.9%	11.3%
Two or more years ago	7.2%	7.8%	9.0%	9.6%
Never	2.9%	1.9%	2.5%	2.0%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Figure 45, below, illustrates respondents who were told that diabetes affected their eyes or that they have retinopathy. In 2003, 27.6 percent of the respondents had been told that diabetes has affected their eyes or they have retinopathy, compared to 23.7 percent in 2000.

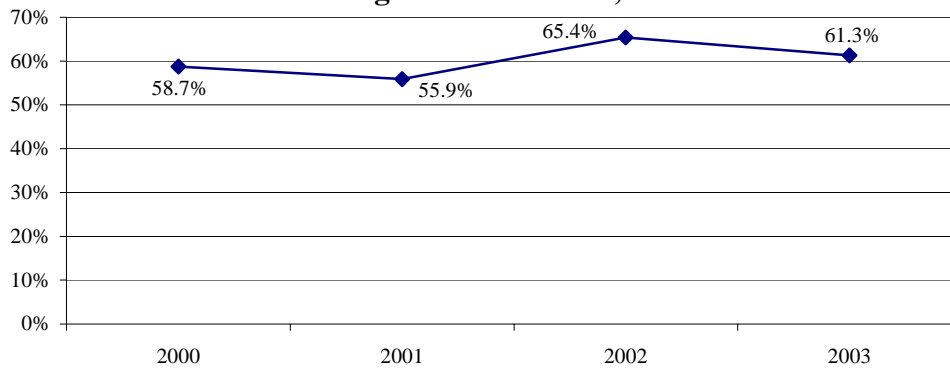
Figure 45
Respondents Told That Diabetes Has Affected Eyes or They Have Retinopathy, 2000-2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Figure 46, on the next page, displays the respondents that have taken a course or class on how to manage their diabetes. In 2003, 61.3 percent of the respondents had taken a course or class on how to manage their diabetes, up from 58.7 percent in 2000.

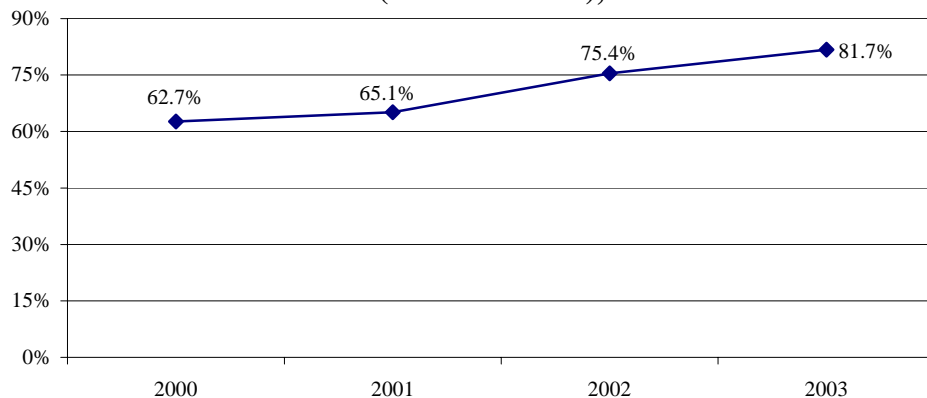
Figure 46
Respondents Who Have Taken a Course or Class on How to
Manage Their Diabetes, 2000-2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Figure 47, below, displays the respondents who had their urine tested for small amounts of protein (microalbumin). In 2003, 81.7 percent of the respondents had their urine tested for small amounts of protein, up from 62.7 percent in 2000.

Figure 47
Respondents Who Had Urine Tested for Small Amounts of
Protein (Microalbumin), 2000-2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Since 2000, the majority of respondents stated that they have not gone to the dentist within the past year. In 2003, 40 percent said they had not seen a dentist while 26.9 percent said they had seen the dentist twice as illustrated below in Table 61.

Table 61 Number of Dentist Checkups Respondents Had in the Past Year, 2000-2003				
	2003	2002	2001	2000
Number of respondents	446	333	347	279
3+	6.6%	6.8%	5.8%	6.0%
2	26.9%	26.8%	25.1%	27.4%
1	26.5%	25.5%	30.3%	26.6%
0	40.0%	41.0%	38.9%	40.0%

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2000-2003

Out of the 3,474 children that were surveyed, 14 were diagnosed with diabetes by a doctor for a rate of 4.0 per 1,000 children. All of the children were diagnosed with Type I diabetes.